REMARKS

This application has been carefully reviewed in light of the Office Action dated May 7, 2004. Claims 1 to 66 are pending in the application, of which Claims 1 and 66 are independent. Reconsideration and further examination are respectfully requested.

The Examiner objected to several citations that were omitted from the Information Disclosure Statement filed August 1, 2001. A Supplemental Information Disclosure Statement which addresses the Examiner's objections is filed concurrently herewith.

The drawings were objected to for various informalities. A Submission of Corrected Drawings which addresses the Examiner's objections is filed concurrently herewith.

The specification was objected to for various informalities. These informalities have been addressed in this Amendment.

Claim 66 was rejected under 35 U.S.C. § 101 because the claimed invention is allegedly directed to non-statutory subject matter. Claim 66 is now directed to a computer-implemented pattern detecting method. Reconsideration and withdrawal of this rejection is respectfully requested.

Claims 1 to 15, 19 to 24 and 66 were rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,058,184 (Fukushima) in view of U.S. Patent No. 5,664,065 (Johnson), and further in view of U.S. Patent No. 6,088,490 (Iwata); Claims 16 to 18, 25 to 36 and 41 to 44 were rejected under 35 U.S.C. § 103(a) over Fukushima in view of Johnson, in further view of Iwata, and in further view of U.S. Patent No. 6,178,207 (Richards); Claims 37, 38 and 40 were rejected under 35 U.S.C. § 103(a) over Fukushima in view of Johnson,

in further view of Iwata, in further view of Richards, and in further view of U.S. Patent No. 5,631,469 (Carrieri); Claims 39 and 45 to 47 were rejected under 35 U.S.C. § 103(a) over Fukushima in view of Johnson, in further view of Iwata, in further view of Richards, in further view of Carrieri, and in further view of U.S. Patent No. 6,081,660 (Macleod); Claims 48 to 50 and 54 to 65 were rejected under 35 U.S.C. § 103(a) over Fukushima in view of Johnson, in further view of Iwata, in further view of Richards, and in further view of "The Implementation of a Multi-View Autostereoscopic Display" (Moore); and Claims 51 to 53 were rejected under 35 U.S.C. § 103(a) over Fukushima in view of Johnson, in further view of Iwata, in further view of Richards, in further view of U.S. Patent No. 4,577,344 (Warren), and in further view of Moore. Reconsideration and withdrawal of these rejections are respectfully requested.

Turning to specific claim language, amended independent Claim 1 is directed to a pattern detecting apparatus which includes input means for inputting a pattern, and pattern detecting means that comprises a plurality of signal processing elements and performs detection related to a plurality of predetermined features on a pattern input by the input means so as to detect a predetermined pattern included in the pattern. Each of the plurality of signal processing elements outputs a pulse signal to another signal processing element or outside in response to an input from the input means or another signal processing element, and each of predetermined ones among the plurality of signal processing elements outputs a pulse signal with an output value corresponding to an arrival time pattern of a plurality of pulse signals input from a plurality of signal processing elements within a predetermined time range.

In contrast, Fukushima is directed to a hierarchical information processing system in which afferent signal paths extend upwards from lower order stages on a pattern input side to higher order stages on the recognition output side and efferent signal paths extend downwards from higher order stages to lower order stages. In this way, input information supplied to the lower order stages is successively transmitted to the higher order stages through the afferent signal paths and an output derived from the higher order stages can be fed-back to the lower order stages through the efferent signal paths. Once an output response has been derived from the higher order stages, the afferent signal paths contribute to cause the output response in the higher order stages and the information processing processes to be influenced by an excitatory effect, meanwhile the remaining efferent signal paths and the information processing processes are affected by an inhibitory effect. (Column 2, line 43 to column 3, line 2.) Nowhere does Fukushima disclose that processing within Fukushima's hierarchical information processing system is based on an arrival time pattern of a plurality of pulse signals. Specifically, Fukushima fails to disclose or suggest Applicant's use of predetermined ones of a plurality of signal processing elements output a pulse signal with an output value corresponding to an arrival time pattern of a plurality of pulse signals input from a plurality of signal processing elements within a predetermined time range.

Johnson allegedly discloses an electro-optical pulse-coupled neural network used to generate pulse patterns from optical images of cluttered input scenes. The pulse patterns correspond to pre-selected objects and are used selectively to open a time gate thereby transmitting light only when the pre-selected objects are present in the scene. (Column 2, lines 49 to 59.) However, Johnson fails to disclose that these pulse patterns are

used in higher level processing. Instead, the pulse patterns are used as the final output of the neural network and used to drive a display viewed by a user. The user must then provide high level processing to further discriminate whether or not the output from the neural network is useful. Specifically, Johnson fails to disclose or suggest Applicant's use of a plurality of pulse signals input from a plurality of signal processing elements within a predetermined time range.

Iwata discloses a method of processing two-dimensional information. In one aspect of the disclosed method, Pulse Width Modulation (PWM) is used to transform an analog signal. The transformation is required to reduce noise propagation through the system. (Column 5, lines 42 to 52 and column 6, lines 42 to 52). However, Iwata does not disclose use of an arrival time pattern of a plurality of pulse signals input from a plurality of signal processing elements because using PWM for transforming an analog signal is not the same as using arrival time patterns for representation of information. In the first instance, encoding an analog signal into a PWM pulse signal is merely transformation of data from one format to another. In the second instance, the arrival time patterns constitute information that is being processed by Applicant's disclosed pattern recognizing apparatus. Specifically, Iwata fails to disclose or suggest Applicant's invention as claimed in amended Claim 1, wherein predetermined ones of a plurality of signal processing elements output a pulse signal with an output value corresponding to an arrival time pattern of a plurality of pulse signals input from a plurality of signal processing elements within a predetermined time range.

Therefore, Fukushima fails to disclose Applicant's pattern detecting apparatus as claimed in amended independent Claim 1. Specifically, Fukushima fails to

disclose at least a pattern detecting apparatus having the feature of signal processing elements with an output pulse signal having an output value corresponding to an arrival time pattern of a plurality of pulse signals input from a plurality of signal processing elements within a predetermined time range. As Johnson and Iwata are not seen to disclose processing of arrival time patterns of a plurality of pulse signals input from a plurality of signal processing elements within a predetermined time range, the combination of Fukushima, Johnson and Iwata cannot be said to disclose or suggest Applicant's invention as claimed in amended independent Claim 1.

In view of the foregoing deficiencies of the applied art, Applicant submits amended independent Claim 1 is in condition for allowance and respectfully requests same. Amended independent Claim 66 is a computer-implemented method substantially in accordance with the apparatus of amended Claim 1. Applicant submits that the discussion from above in regard to Claim 1 is equally applicable to Claim 66. Therefore, Applicant believes Claim 66 is also in condition for allowance and respectfully requests same.

The other pending claims in this application are each dependent from independent Claim 1 discussed above and are therefore believed patentable for at least the same reasons. Because each dependent claim is also deemed to define an additional aspect of the invention, however, individual consideration of each dependent claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, the entire application is believed to be in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicant's undersigned attorney may be reached in our Costa Mesa, CA

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listed address.

Respectfully submitted,

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